FORM PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.: COOL-01400	Serial No.: 10/612,241
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(37 CFR § 1.98(b))		Filing Date: July 1, 2003	Group Art Unit: 3743

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Examiner Initials		Serial/Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
TD	AA	6,632,719 B1	10/14/03	DeBoer et al.	438	381	08/31/00
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TD	FD	Kambiz Vafai et al., Analysis of two-layered micro-channel heat sink concept in electronic cooling, 1999, Int. J. Heat Mass Transfer, 42 (1999), pages 2287-2297.
TD	FE	Gokturk Tune et al., Heat transfer in rectangular microchannels, 2002, Int. J. Heat Mass Transfer, 45 (2002), pages 765-773.
TD	FF	D. B. Tuckerman et al., High-Performance Heat Sinking for VLSI, 1981, IEEE Electron Device Letters, Vol. EDL-2, No. 5, pages 126-129.
TD	FG	Bengt Sunden et al., An Overview of Fabrication Methods and Fluid Flow and Heat Transfer Characteristics of Micro Channels, pages 3-23.
TD	FH	David S. Shen et al., Micro Heat Spreader Enhance Heat Transfer in MCMs, 1995, IEEE Multi-Chip Module Conference, pages189-194.
TD	FI	S. Sasaki et al., Optimal Structure for Microgrooved Cooling Fin for High-Power LSI Devices, Electronic Letters, December 4, 1986, Vol 22, No. 25.
TD	FJ	Vijay K. Samalam, Convective Heat Transfer in Microchannels, September 1989, Journal of Electronic Materials, Vol. 18, No. 5, pages 611-617.
TD	FK	Sanjay K. Roy et al., A Very High Heat Flux Microchannel Heat Exchanger for Cooling of Semiconductor Laser Diode Arrays, 1996, IEEE Transactions on components, packaging, and manufacturing technology-part B, Vol. 19, No. 2, pages 444-451.

Examiner:	Date Considered: 8/21/06

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 (Modified) U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.: COOL-01400	Serial No.: 10/612,241
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use Several Sheets If Necessary)	Applicants: James Lovette et al.	
(37 CFR § 1.98(b))	Filing Date: July 1, 2003	Group Art Unit: 3743

		OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)
TD	FL	Charlotte Gillot et al., Integrated Single and Two-Phase Micro Heat Sinks Under IGBT Chips, IEEE Transactions on Components and Packaging Technology, Vol. 22 No. 3, September 1999, pages 384-389.
TD	FM	H. Krumm "Chip Cooling", IBM Technical Disclosure Bulletin, Vol. 20, No. 7, December 1977, pg. 2728.
TD	FN	Jae-Mo Koo et al., "Modeling of Two-Phase Microchannel Heat Sinks for VLSI Chips", Mech. Eng. Depart. of Stanford University, pp. 422-426.
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Examiner:	Date Considered: 8/21/06

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(37 CFR § 1.98(b))		Filing Date: July 1, 2003	Group Art Unit: 3743

U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						

FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

		Document Number	Publication Date	Country / Patent Office	Class	Subclass	Translation	
							Yes	No
TD	AK	DE 197 10 716 C2	09/24/98	DE	H01S	5/024		X
TD	AL	WO 01/25711 A1	04/12/01	PCT	F28F	3/04		X
	AM							
	AN							
	AO							

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

	AP	
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Examiner: [signature] Date Considered: 8/21/06

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.: COOL-01400	Serial No.: 10/612,241
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use Several Sheets if Necessary)		Applicants: James Lovette et al.	
(37 CFR § 1.98(b))		Filing Date: July 1, 2003	Group Art Unit: 3753

U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
TD	AA	4,494,171	01/15/85	Bland et al.	361	386	08/24/82
TD	AB	5,145,001	09/08/92	Valenzuela	165	164	04/23/91
TD	AC	6,131,650	10/17/00	North et al.	165	170	07/20/99
TD	AD	6,196,307 B1	03/06/01	Ozmat	165	185	06/17/98
TD	AE	6,508,301 B2	01/21/03	Marsala	165	80.4	04/17/01
TD	AF	US 2004/0112571 A1	06/17/04	Kenny et al.	165	80.3	10/30/03
TD	AG	US 2005/0168949 A1	08/04/05	Tilton et al.	361	699	01/30/04
	AH						
	AI						
	AJ						

FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

		Document Number	Publication Date	Country / Patent Office	Class	Subclass	Translation	
							Yes	No
	AK							
	AL							
	AM							
	AN							
	AO							

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

	AP	
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	AY	
	AZ	

Examiner: [signature] Date Considered: 8/21/06

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

7/10/06

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	MULTI-LEVEL MICROCHANNEL HEAT EXCHANGERS

Application Number : 10/612241

Confirmation Number: 3319

First Named Applicant: James Lovette

Attorney Docket Number:

Art Unit:

Examiner:

Search string: (5417280).pn

Certification: This Information Disclosure Statement was submitted under the following conditions, which satisfies the requirement under 37 CFR 1.97(e). The filer certified:

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
TD	1	5417280	1995-05-23	Hayashi et al.			

Signature

Examiner Name	Date
[signature]	8/21/06

2/1/05

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	MULTI-LEVEL MICROCHANNEL HEAT EXCHANGERS

Application Number : 10/612241

Confirmation Number: 3319

First Named Applicant: James Lovette

Attorney Docket Number:

Art Unit:

Examiner:

Search string: (6438984 or 6581388 or 6587343).pn

Certification: This Information Disclosure Statement was submitted under the following conditions, which satisfies the requirement under 37 CFR 1.97(e). The filer certified:

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
TM	1	6438984	2002-08-27	Novotny et al.	B1		
TM	2	6581388	2003-06-24	Novotny et al.	B2		
TM	3	6587343	2003-07-01	Novotny et al.	B2		

Signature

Examiner Name	Date
[signature]	8/21/06

1/26/05

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	MULTI-LEVEL MICROCHANNEL HEAT EXCHANGERS

Application Number : 10/612241

Confirmation Number: 3319

First Named Applicant: James Lovette

Attorney Docket Number:

Art Unit:

Examiner:

Search string: (2039593 or 4574876 or 6206022 or 6253835 or 6437981).pn

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US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
TP	1	2039593	1936-05-05	T. N. Hubbuch et al.			
TP	2	4574876	1986-03-11	Aid			
TP	3	6206022	2001-03-27	Tsai et al.	B1		
TP	4	6253835	2001-07-03	Chu et al.	B1		
TP	5	6437981	2002-08-20	Newton et al.	B1		

Signature

Examiner Name	Date
[signature]	8/21/05

5/5/05

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	MULTI-LEVEL MICROCHANNEL HEAT EXCHANGERS

Application Number : 10/612241

Confirmation Number: 3319

First Named Applicant: James Lovette

Attorney Docket Number:

Art Unit:

Examiner:

Search string: (5316077 or 6167948 or 6606251 or 20030062149).pn

Certification: This Information Disclosure Statement was submitted under the following conditions, which satisfies the requirement under 37 CFR 1.97(e). The filer certified:

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
TM	1	5316077	1994-05-31	Reichard			
TM	2	6167948	2001-01-02	Thomas	B1		
TM	3	6606251	2003-08-12	Kenny, Jr. et al.	B1		

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
TM	1	20030062149	2003-04-03	Goodson et al.	A1		

Signature

Examiner Name	Date
Thomas	8/21/06